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0029 A variable transmission focal mask to compensate lens heating is disclosed. A semiconductor fabrication alignment and exposure equipment includes an exposure and alignment unit, a variable transmission mask, and a stage. The unit has a light source and a lens. The mask is under the lens, and at least indirectly measures focus. The mask further can adjust the focus in real time in response to determining that the focus is out of specification. A wafer is placed on the stage for exposure to the light source through a mask or a reticle. The variable transmission mask normally has a substantially high transmission of light rating that can be adjusted downward to adjust the focus. For example, the mask can be a liquid crystal display (LCD) that can be darkened to so reduce its transmission of light rating.